

1.0 THE COMPANY

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# THE Company

I.S.I.F. offers throughout Europe services of Drilling, Hot Tapping and Plugging on anytype of pipeline for the transport of fluids at pressures up to 16 BAR and Max temperature of 90°C \*(\*PNmax 12 BAR), using systems that allow the execution of repairs and maintenance without interrupting the supply service, by the application of a bypass between the two points of fluid interception.

The company offers two different kind of services on pipelines maintenance: the first concerns the mechanical management of the shutter systems; the second concerns the welds on contaminated ducts through control systems patented ISIF.

The company I.S.I.F. projects, manufactures and markets equipments for execution of interventions on fluid distribution networks, such as the series Lock Line (ISIF patented design), which consist in the full range of equipment for plugging of fluids from DN 1" to DN 16" with nominal operative pressure of 16 BAR, the drilling machine kit for the execution of drilling on steel pipes from DN 1" to DN 16", equipment for plugging fluids at low pressure, the complete set of fittings for mounting of equipment.

The I.S.I.F. deems necessary conditions for business growth, the continuous improvement of its processes and systems in a competitive market, in order to meet the needs of the stakeholders. The I.S.I.F. with its long standing experience and its innovative technology has developed a system to improve the safety level of operators.

The Safe Work System is a device conceived to ensure the achievement of maintenance operations in confined and contaminated areas. The SWS is a prevention solution that allows a safe conduct of all activities of maintenance by the operators through an instrument easy to manage and reliable use.



# PLUGGING SISTEM LOCK LINE

#### FROM DN 2" TO DN 16" UP TO 16 BAR

The plugging system Lock Line is conceived to allow the execution of fluid flow stopping on distribution networks of a diameter from DN 2" to DN 16", maximum operating pressure of PN 16 BAR and maximum temperature of 90°C \* (\* PNmax 12 BAR). The assembly of the machinery on the pipeline, object of the intervention, must be carried out by welding on the pipe a contoured fitting of the Lock Line series in an appropriate diameter.

Additional preliminary operations to be performed before installing the Lock Line plugging system, provide for mounting the Lock Line flat valve on the fitting welded to the pipe, assembling on top of the valve of the Lock Line drilling machine, the execution through the valve and the fitting of the bore of the pipe with recovery of coupons cut, removal of the drilling machine and the subsequent assembly of the Lock Line plugging machine.

The Lock Line plugging system is composed by a flat valve and a plugging machine.

The flat value is a slide value consisting of a steel upper collar, a value body, a lower flange. The upper collar acts as a support and interface for mounting the plugging machine, the bottom flange acts as an interface for mounting on the Lock Line fitting: the connections are made by screwing the threaded collars.

The plugging machine is composed by a outer cylindrical bell made in galvanized steel, equipped with a threaded sleeve for diameters from DN 2" to DN 3" and flanged in the lower part for diameters from DN 4" to DN 16" so to be fasted to the top collar of the flat valve, and also constituted by an interchangeable plugging set which consist of a mounting flange on the top of the bell and by a rod that slides inside the flange, itself through appropriate seals. At the lower end of the rod is mounted the plugging head: by operating the control coupling at top of the rod we determine the expansion of the rubber seal of plugging head that, once inserted inside the pipe and passing through the flat valve and the fitting, it seals the inner diameter of the pipe so to stop the fluid flow.

# LOCK LINE Plugging Systems

2.0

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# LOCK LINE Plugging Machine 3.24

DN 2"- 21/2"- 3" UP TO 16 BAR





The plugging system Lock Line 3.24 is conceived to allow the execution of fluid flow stopping on distribution networks of diameters DN 2"-  $2\frac{1}{2}$ "- 3", maximum operating pressure of PN 16 BAR and maximum temperature of 90°C \* (\*PNmax 12 BAR).

The assembly of the machinery on the pipeline, object of the intervention, must be carried out by welding on the pipe a contoured fitting of the Lock Line series in an appropriate diameter.

Additional preliminary operations to be performed before installing the Lock Line 3.24 plugging system, provide for mounting the Lock Line flat valve on the fitting welded to the pipe, assembling on top of the valve of the drilling machine, the execution through the valve and the fitting of the bore of the pipe with recovery of coupons cut, removal of the drilling machine and the subsequent assembly on the flat valve of the Lock Line 3.24 plugging machine.

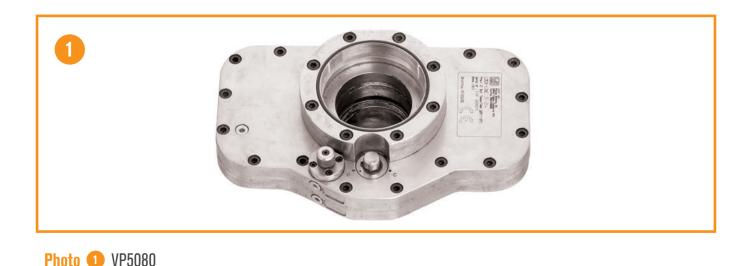
### Composition of Lock Line System 3.24

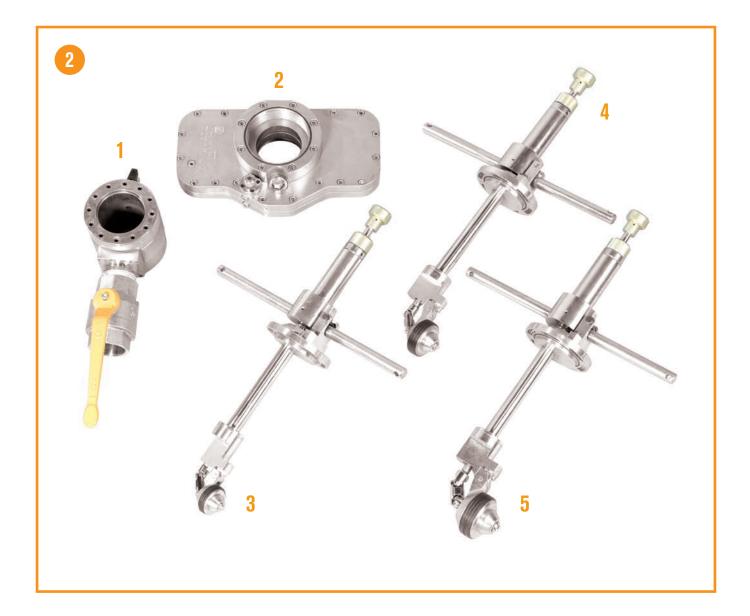
#### Lock Line Flat Valve 3.24

It's a steel sliding valve which consists of a top collar, a valve body, a lower flange. The upper collar acts as a support and interface for mounting the plugging machine, the bottom flange acts as an interface for mounting on the fitting of the series Lock Line, the connection takes place by screwing the threaded collars.

#### Lock Line Plugging Machine 3.24

The plugging machine is composed by an outer cylindrical bell made in galvanized steel, equipped with a threaded sleeve in the lower part so to be fasted to the top collar of the flat valve, and also constituted by three interchangeable plugging set (sized for each diameter of DN 2", DN 2<sup>1</sup>/<sub>2</sub>", DN 3") which consist of a mounting flange on the top of the bell and by a rod that slides inside the flange, itself through appropriate seals. At the lower end of the rod is mounted the plugging head (sized for each diameter of DN 2", DN 2<sup>1</sup>/<sub>2</sub>", DN 3"): by operating the control coupling at top of the rod we determine the expansion of the rubber seal of plugging head that, once inserted inside the pipe and passing through the flat valve and the fitting, it seals the inner diameter of the pipe so to stop the fluid flow.





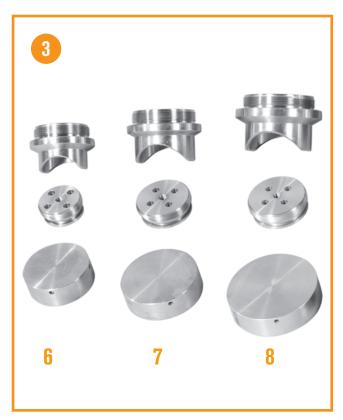


Photo 2	1 TMP50800015	2 VP5080	3 TMP050
4 TMP065	5 TMP080		

Photo (3) 6 FIT050 7 FIT065 8 FIT080

#### NORMS

The equipment is built in accordance with the following norms:



Photo 4 3 TMP050 4 TMP065 5 TMP080

### TECHNICAL DATA SHEET

Nominal diameter	DN 2"- 2½"- 3" (internal diameter 81.7mm, 69.7mm, 53.9mm)
Operating maximum pressure	16 bar (PN max 12 bar for Tmax 90°C)
Overall dimensions	DN 2″ 623 x 223 x 125 mm - DN 2½″ 639 x 223 x 125 mm DN 3″ 668 x 223 x 125 mm
Overall dimensions flat valve	DN 3″ 339 x 200 x 102 mm
Diameter of the passage	89 mm
Weight plugging machine	DN 2" 17 kg - DN 2½" 17 kg - DN 3" 19 kg
Weight flat valve	27 Kg



# LOCK LINE Plugging Machine 6.24

DN 4"- 5"- 6" UP TO 16 BAR





The plugging system **Lock Line 6.24** is conceived to allow the execution of fluid flow stopping on distribution networks of diameters DN 4"- 5"- 6", maximum operating pressure of PN 16 BAR and maximum temperature of 90°C \* (\*PNmax 12 BAR).

The assembly of the machinery on the pipeline, object of the intervention, must be carried out by welding on the pipe a contoured fitting of the Lock Line series in an appropriate diameter.

Additional preliminary operations to be performed before installing the Lock Line 6.24 plugging system, provide for mounting the Lock Line flat valve on the fitting welded to the pipe, assembling on top of the valve of the drilling machine, the execution through the valve and the fitting of the bore of the pipe with recovery of coupons cut, removal of the drilling machine and the subsequent assembly on the flat valve of the Lock Line 6.24 plugging machine.

### Composition of Lock Line System 6.24

#### Lock Line Flat Valve 6.24

It's a steel sliding value which consists of a top collar, a value body, a lower flange. The upper collar acts as a support and interface for mounting the plugging machine, the bottom flange acts as an interface for mounting on the fitting of the series Lock Line (the machine can be joined also over fitting of a standard type by the interposition of a special adapter flange).

#### Lock Line Plugging Machine 6.24

The plugging machine is composed by an outer cylindrical bell made in galvanized steel, equipped with a threaded sleeve in the lower part so to be fasted to the top collar of the flat valve, and also constituted by three interchangeable plugging set (sized for each diameter of DN 4", DN 5", DN 6") which consist of a mounting flange on the top of the bell and by a rod that slides inside the flange, itself through appropriate seals. At the lower end of the rod is mounted the plugging at top of the rod we determine the expansion of the rubber seal of plugging head that, once inserted inside the pipe and passing through the flat valve and the fitting, it seals the inner diameter of the pipe so to stop the fluid flow.

## TECHNICAL DATA SHEET

Nominal diameter	DN 4"- 5"- 6" (internal diameter 107.1mm,132.5mm,160.3mm)
Operating maximum pressure	16 bar (PN max 12 bar for Tmax 90°C)
Overall dimensions	DN 4" 930 x 279 x 220 mm - DN 5" 965 x 279 x 220 mm - DN 6"1053 x 279 x 220 mm
Overall dimensions flat valve	580 x 316 x 180 mm
Diameter of the passage	155 mm
Weight plugging machine	DN 4" 40 Kg - DN 5" 43 Kg - DN 6" 46 Kg
Weight flat valve	91 Kg

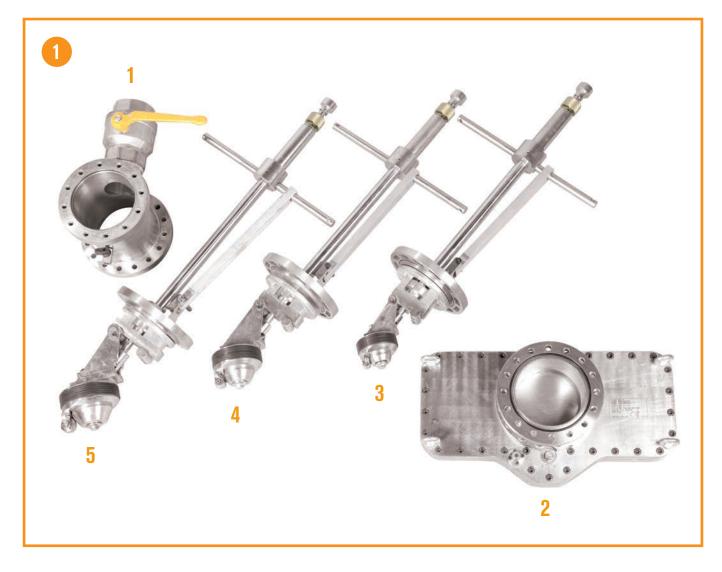
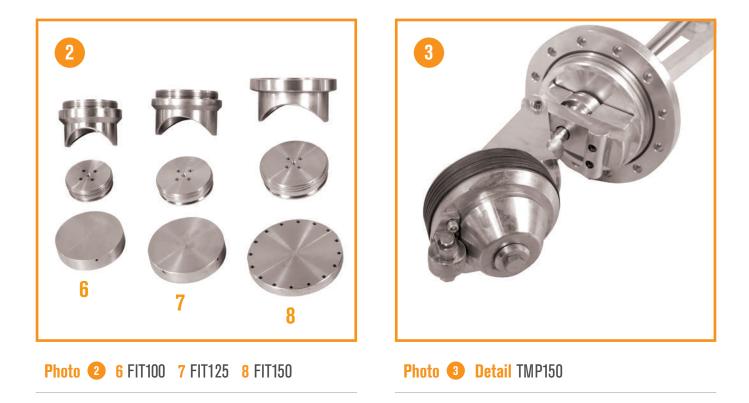


Photo 1 TMP5150024 2 VP100150 3 TMP100 4 TMP125 5 TMP150



### NORMS

The equipment is built in accordance with the following norms:

97/23/CE EN ISO 12100-1 EN ISO 12100-2 EN 13857 EN 349 EN ISO 13850 EN 619 EN 1050 UNI EN 12516-2



# LOCK LINE Plugging Machine 8.24

DN 8" UP TO 16 BAR





The plugging system **Lock Line 8.24** is conceived to allow the execution of fluid flow stopping on distribution networks of diameters DN 8", maximum operating pressure of PN 16 BAR and maximum temperature of 90°C \* (\*PNmax 12 BAR).

The assembly of the machinery on the pipeline, object of the intervention, must be carried out by welding on the pipe a contoured fitting DN 8" of the Lock Line series in an appropriate diameter. Additional preliminary operations to be performed before installing the Lock Line 8.24 plugging system, provide for mounting the Lock Line flat valve on the fitting welded to the pipe, assembling on top of the valve of the drilling machine, the execution through the valve and the fitting of the bore of the DN 200 pipe with recovery of coupons cut, removal of the drilling machine and the subsequent assembly on the flat valve of the Lock Line 8.24 plugging machine.

### Composition of Lock Line System 8.24

#### Lock Line Flat Valve 8.24

It's a steel sliding valve which consists of a top collar, a valve body, a lower flange. The upper collar acts as a support and interface for mounting the plugging machine, the bottom flange acts as an interface for mounting on the DN 8" fitting of the series Lock Line (the machine can be joined also over DN 8" fitting of a standard type by the interposition of a special adapter flange).

#### Lock Line Plugging Machine 8.24

The plugging machine is composed by an outer cylindrical bell made in galvanized steel and a rod sliding inside through appropriate seals. At the lower end of the rod is mounted the plugging head: by operating the control coupling at top of the rod we determine the expansion of the rubber seal of plugging head that, once inserted inside the pipe and passing through the flat valve and the fitting, it seals the inner diameter of the pipe so to stop the fluid flow. Through the lower flange of the bell the plugging machine is joined to the upper collar of the valve flat.



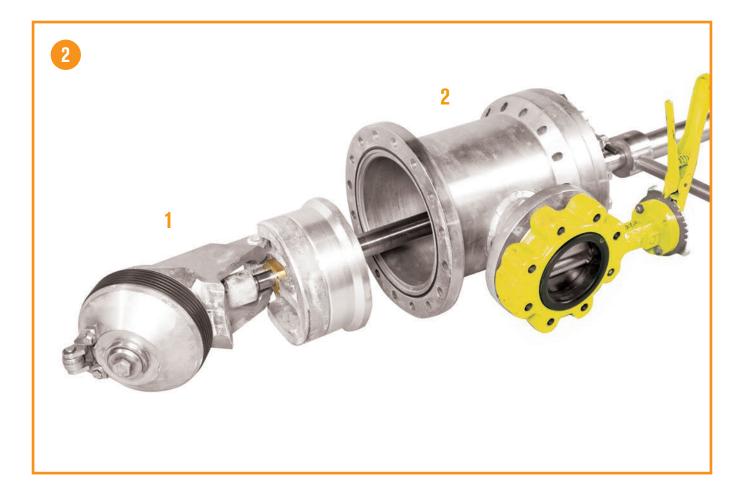




Photo (2) 1 TMP200 2 TMP520011

Photo 3 FIT200

#### NORMS

The equipment is built in accordance with the following norms:

97/23/CE EN ISO 12100-1 EN ISO 12100-2 EN 13857 EN 349

EN ISO 13850 EN 619 EN 1050 UNI EN 12516-2

# TECHNICAL DATA SHEET

10

and the second s	
Nominal diameter	DN 8" (internal diameter 210mm)
Operating maximum pressure	16 bar (PN max 12 bar for Tmax 90°C)
Overall dimensions	1545 x 411 x 298 mm
Overall dimensions flat valve	932 x 501 x 331 mm
Diameter of the passage	218 mm
Weight plugging machine	128 Kg
Weight flat valve	272 Kg

# **LOCK LINE PLUGGING MACHINE 10.24 – 12.24** DN 10"– 12" FINO A 16 BAR



2.4



The plugging system Lock Line 10.24 and 12.24 is conceived to allow the execution of fluid flow stopping on distribution networks of diameters DN 10" and 12", maximum operating pressure of PN 16 BAR and maximum temperature of 90°C \* (\*PNmax 12 BAR).

The assembly of the machinery on the pipeline object of the intervention must be carried out by welding on the pipe a contoured fitting DN 10"- 12" of the Lock Line series.

Additional preliminary operations to be performed before installing the Lock Line 10.24 - 12.24 plugging system provide for mounting the Lock Line flat valve on the fitting welded on the pipe, assembling the drilling machine on top of the valve, execution of the bore of the DN 10"- 12" pipe through the valve and the fitting with recovery of coupons cut, removal of the drilling machine and the subsequent assembly on the flat valve of the Lock Line 10.24 - 12.24 plugging machine.

### Composition of Lock Line System 10.24 - 12.24

#### Lock Line Flat Valve 10.24 - 12.24

The flat value, of a compact steel construction with double protective galvanizing, presents the double seal which protects also the moving parts: gaskets remain in a protected position also with the value opened and are therefore not in contact with the dirt that can be transported by fluid flow.

The top flange of the assembly allows the positioning of the Lock Line plugging machine 10.24 - 12.24, of the drilling machine, and of the inspection case and of other accessories. The lower flange of the flat valve is dimensioned for mounting on fitting DN 10"- 12" stainless steel Lock Line series.

#### Lock Line Plugging Machine 10.24 - 12.24

The plugging machine is composed by a plugging head DN 10"-12" mounted inside a flanged case equipped with a exit valve for the bypass of DN 6". The lower flange of the case is sized for mounting on Lock Line flat valve 10.24 - 12.24.

The plugging machine has been designed and implemented with double seals for all the moving parts and two locking devices that allow the operator to work in a complete safety both during the insertion phase and during the expansion phase. The transmission of 90° of rotational movement of the main crankshaft which determines the expansion of the plugging head is obtained easily and safely by a solid and versatile cardanic joint.

Lock Line 10.24 - 12.24 machineries are sized to be used with a drilling machine both for drilling and for mounting the inner plug.



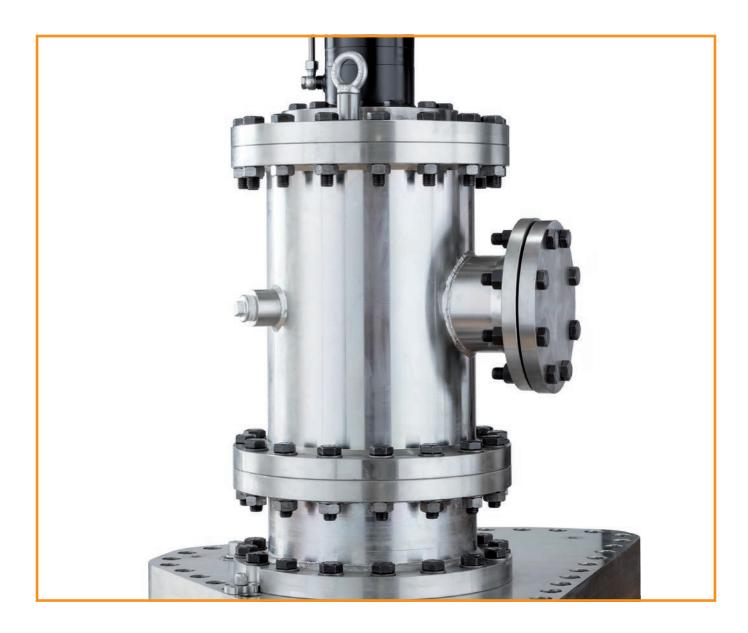
### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE EN ISO 12100-1 EN ISO 12100-2 EN 13857 EN 349	EN ISO 13850 En 619 En 1050 UNI EN 12516-2
Photo 1 Plugging Hea	d Controls

Photo (2) 1 TMP300 2 TMP250





## TECHNICAL DATA SHEET

Nominal diameter	DN 10"- 12"
Operating maximum pressure	16 bar (PN max 12 bar for Tmax 90°C)
Connection for flanged bypass	DN 6"
Overall dimensions	DN 10″ 4200 x 600 x 510 - DN 12″ 4100 x 600 x 510 mm
Overall dimensions flat valve	DN 10" 638 kg - DN 12" 670kg
Diameter of the passage	332 mm
Weight plugging machine	1370 × 820 × 500 mm
Weight flat valve	1054 Kg



DN 14"- 16" UP TO 16 BAR





The plugging system **Lock Line 14.24** and **16.24** is conceived to allow the execution of fluid flow stopping on distribution networks of diameters DN 14" and 16", maximum operating pressure of PN 16 BAR and maximum temperature of 90°C \* (\*PNmax 12 BAR).

The assembly of the machinery on the pipeline, object of the intervention, must be carried out by welding on the pipe a contoured fitting DN 14"-16" of the Lock Line series.

Additional preliminary operations to be performed before installing the Lock Line 14.24 - 16.24 plugging system, provide for mounting the Lock Line flat value on the fitting welded on the pipe, assembling the drilling machine on top of the value, execution of the bore of the DN 14"- 16" pipe through the value and the fitting with recovery of coupons cut, removal of the drilling machine and the subsequent assembly on the flat value of the Lock Line 14.24 - 16.24 plugging machine.

#### Composition of Lock Line System 14.24 - 16.24

#### Lock Line Flat Valve 14.24 - 16.24

The flat valve, of a compact steel construction with double protective galvanizing, presents the double seal which protects the moving parts: gaskets remain in a protected position also with the valve opened and are therefore not in contact with the dirt that can be transported by fluid flow. The top flange of the assembly allows the positioning of the Lock Line plugging machine 16.24, of the drilling machine, and of the inspection case and of other accessories. The lower flange of the flat valve is dimensioned for mounting on fitting DN 16" stainless steel Lock Line series.

#### Lock Line Plugging Machine 14.24 - 16.24

The plugging machine is composed by a plugging head DN 16" with separated expandable sectors, mounted inside a flanged case equipped with a exit valve for the bypass of DN 8". The lower flange of the case is sized for mounting on Lock Line flat valve 16.24.

The plugging machine has been designed and implemented with double seals for all the moving parts, and two locking devices that allow the operator to work in a complete safety both during the insertion phase and during the expansion phase. The transmission of 90° of rotational movement of the main crankshaft which determines the expansion of the plugging head is obtained easily and safely by a solid and versatile cardanic joint. Lock Line 14.24 -16.24 machineries are sized to be used with a drilling machine both for drilling and for mounting the inner plug.

Possibility of reinforcement with a special support sleeve to avoid side warping of the pipe.

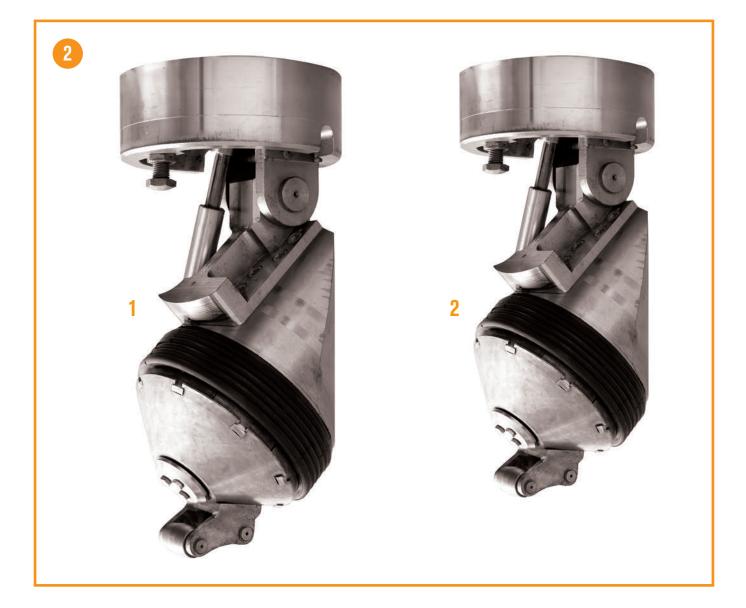


### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE En ISO 12100-1 En ISO 12100-2 En 13857 En 349	EN ISO 13850 En 619 En 1050 Uni en 12516-2
Photo 1 Plugging Hea	d Controls

#### Photo (2) 1 TMP400 2 TMP350





## TECHNICAL DATA SHEET

Nominal diameter	DN 14"-16"
Operating maximum pressure	16 bar (PN max 12 bar for Tmax 90°C)
Connection for flanged bypass	DN 8"
Overall dimensions	DN 14″ 4025 x 620 x 715 - DN 16″ 4093 x 715 x 620 mm
Overall dimensions flat valve	1370 x 1044 x 796 mm
Diameter of the passage	415 mm
Weight plugging machine	DN 14" 848 kg - DN 16" 912kg
Weight flat valve	1861 Kg







**Micro Lock** plugging machine allows low pressure (max 0,5 Bar) gas flows plugging on DN 1" up to DN 3" steel pipes. The double-track plug allows to perform interventions in easy and safe conditions, without interruption of the service and reducing maintenance costs. The equipment is built in "Ergal" alloy and is characterized by an innovative design. The assembly of the equipment has to be realized by means of an appropriate diameter fitting pre-mounted on the pipe and welded fittings (optional). Further preliminary actions to be done before the installing the Micro Lock plugging equipment are: assembly of the Micro Lock sandwich valve DN 1"- 3" on the interface fitting on the pipe; assembly of the Drilling Machine on the upper part of the sandwich valve; drilling of the pipe with recovery of the cut coupon; dismounting of the drilling and assembly of the Micro Lock DN 1"- 3" plugging machine on the valve.

The four plugging machines included in the Micro Lock Kit are supplied completely assembled with all their components, each machine is equipped with an expanding plug rod for DN 025, DN 032, DN 040, DN 050, DN 065, DN 080 pipes. The equipment is supplied complete of: bypass casing, expanding plugs, sandwich valves, valve fitters, metal containing case, assembly keys kit.

Accessories: by-pass pipe, 160 mm stroke drilling machine, hole saw cutters.

#### MICRO LOCK MODELS MCL2532 DN 1"- 11/4"

MCL4050 DN 11/2"- 2"

MCL6580 DN 21/2"- 3"

### BORE DIAMETERS

DN 1"	MM24
DN 11/4"	MM32
DN 11/2"	MM37
DN 2"	MM48
DN 21/2"	MM64
DN 3"	MM76









Photo 1 MCL2532 1 MCL25 2 MCL32
Photo 1 2 MCL4050 3 MCL40 4 MCL50
Photo (2) MCL6580 5 MCL65 6 MCL80
Photo 3 7 KML32 8 KML50 7 KML80



### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE	EN ISO 13850
EN ISO 12100-1	EN 619
EN ISO 12100-2	EN 1050
EN 13857	UNI EN 12516-2
EN 349	









**Bag Lock** plugging machine has been designed and realized with the purpose of plugging gas flows and executing bypass connections for pressure up to 0,02 Bar for steel pipes and up to 0,5 Bar for polyethylene pipes.

#### The machine structure is composed of:

a main body in aluminum alloy equipped with zinc-plated steel fittings;

a couple of cylindrical valves; a shutter for the vertical sliding of the protection collar; a couple of cylinders for containing, fixed at the edge of a piston, appropriated ball-plugs for duct sealing once inserted and inflated.

The two cavities inside the main body are separated in the upper part but merge in a single inner chamber in the lower part. Each of the two cavities in the upper part is equipped with a threaded fitting for the cylinders. Below the fitting, each cavity has an independent cylindrical valve for opening or closing the ducts operating on proper external handles with the aim to allow the substitution of damaged ball-plugs during the intervention. In the lower part, the main body is endowed of a slotted flange for the assembly on a proper sandwich valve. A shutter, composed of a horizontal rod settled between the two threaded fittings and linked to two vertical bars, allows the vertical sliding of a protection collar fixed inside. A ventilation bore (<sup>3</sup>/<sub>4</sub>" gas) named "hydraulic guard" on the upper part aside the fittings putting in communication the lower inner chamber with external atmosphere. Every cylinder contains a piston that can be actuated operating on the chrome-plated tubular bar.

The piston is equipped with a coupler for the ball-plug, while the tubular rod has an edge with two holes ( $\frac{1}{4}$ " gas) respectively set for the assembly of a manometer and of a fitting for inflating pressured air of the ball-plug.

### OPERATING DIAMETERS

DN 080 - DN 300 STEEL / CAST IRON

DN 090 - DN 315 POLYETHYLENE

## BAG LOCK MODELS

MODEL BL80300

MODEL BL80300/M for inserting single ball plug

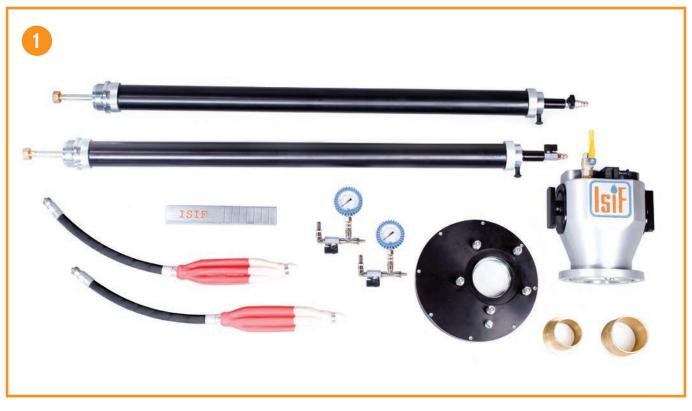


Photo 1 KIT BL80300

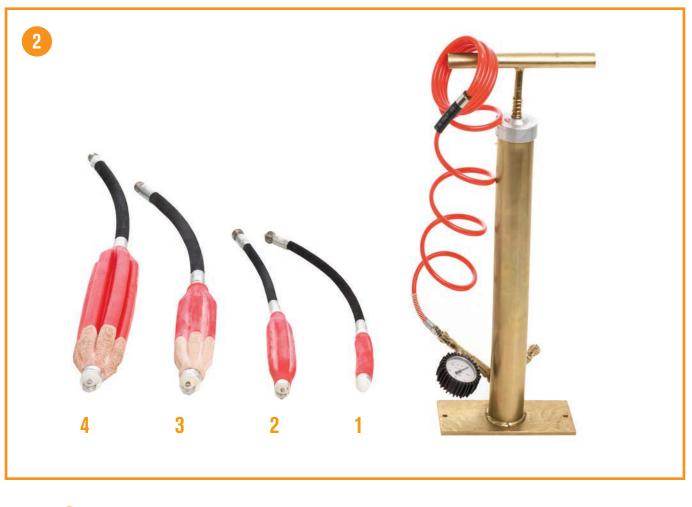


Photo (2) 1 BBL6080 2 BBL100125 3 BBL150200 4 BBL250300







Photo (5) 14 BL100 15 BL080

Photo 3	<b>5</b> FPE090x2.5	6 FPE125x3	7 FPE180x3
	8 FPE225x3	9 FPE315x3	

Photo 4 10 FIB080 11 FIB150 12 FIT1080 13 FIT1150

#### NORMS

The equipment is built in accordance with the following norms:



RICE 200/64

OPERATING PRESSURES 0,5 UP TO 64 BAR



2.8



The equipment is mainly composed by an innovative fitting playing a double function of assembly fitting and valve, by a displacing device for the shutter of the valve, by the hydraulic plugging machine.

The new conception fitting designed by I.S.I.F. allows to eliminate one of the most hazardous and expensive operations of these kind of interventions: the re-assembly of the drilling machine for the insertion of the inner plug of the fitting. The inner plug of the fitting is the shutter of the fitting-valve which, when the operations are completed, is left inside the fitting by dismounting the shutter displacement device. Then, two more external flanges are assembled in order to secure the sealing of the fitting. The plugging machine is quite hydraulic operated both for the insertion of the plug in the pipe (operated by the upper hydraulic piston) and for the rubber plug expansion inside the pipe to be sealed. The expansion is obtained by means of two tapered steel disks (operated by the hydraulic piston inside the plug) which are forced to move one towards the other as to cause the expansion of the rubber torus gasket between them on the inner wall of the pipe for its sealing. The plug case is equipped with a bypass flange for the execution of the work without interruption of the service. The plugging machine is equipped with a device for a direct nitrogen injection inside the pipe without the need of welding a dedicated fitting on the pipe.



# LOCK LINE Drilling System

#### DN 2"- 6" UP TO 12 BAR

Lock Line drilling system is realized for drilling pressured pipes up to 16 BAR.

Bore DN	Mini drilling system ½"- 2" (ball valves)	Drilling system 1″- 2″ (mini lock)	Mini drilling system 1"- 3" (micro lock)	Drilling system 1"- 6"	Drilling system 8"-16"
1/2″	12 mm	—	—	_	_
] ″	21mm	24 mm	24 mm	19 mm	—
] 1⁄4″	27 mm	32 mm	32 mm	—	—
1 1⁄2″	35 mm	37 mm	37 mm	—	_
2″	45 mm	48 mm	48 mm	51 mm	_
21⁄2″	—	—	64 mm	64 mm	—
3″	—	—	76 mm	76 mm	_
4″	-	—	—	98 mm	-
5″	—	—	—	121 mm	—
6"	—	—	—	140 mm	—
8″	—	—	—	—	190 mm
10″	—	—	—	—	248 mm
12″	—	—	—	_	296 mm
14"	-	—	—	_	325 mm
16"	—	—	—		375 mm

## LOCK LINE DRILLING SYSTEM

3.0







**MINI Drilling** System is designed for the execution of drilling on pressured pipes up to 5 BAR. The equipment is designed to operate bores DN ½" up to DN 3".

The equipment is composed by a central body on which the fitting can be assembled for adapting the machine to the different bore diameters. The body is composed by a screw inside which the central shaft can slide. The sealing between the shaft and the screw is granted by two o-rings, and between the screw and the reduction fitting by an o-ring in the lower part of the screw.

The equipment is supplied complete of a series of interchangeable fittings male threaded with gaskets and ventilation valves.

The basic equipment includes a series of high-speed steel drills and hole saw cutters for the cutting of steel and cast iron pipes. An exclusive feature of this equipment is the coupon recovery device.

The equipment is hand-operated by means of a lever, the progressing and pressure of drilling are regulated by a compression spring working on bearings. This system grants a considerably longer duration of the hole saw cutters, a minimum effort for the operator, a fast execution of the hole.

The drilling system can by assembled, using proper casings and drilling hole saw cutters, on ball-valves, Mini Lock plugging machines, Micro Lock plugging machines.

Nominal diameter	DN ½"- 1"- 1¼"- 1½"- 2"- 3"
Operation Max pressure	5 BAR
Overall dimensions	396 x 45 mm
Weights	3.5Kg

#### TECHNICAL DATA SHEET

#### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE	EN ISO 13850
EN ISO 12100-1	En 619
EN ISO 12100-2	En 1050
EN 13857	Uni en 12516-2
EN 349	UNI LN 12310-2



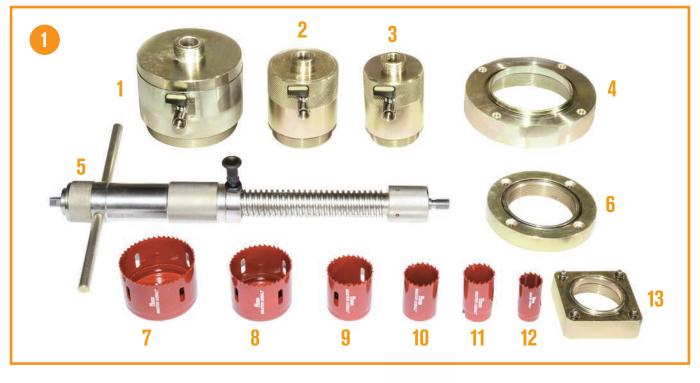


 Photo
 MINI DRILLING MACHINE KIT 1"- 3" MICRO LOCK
 1 KML2065003
 2 KVS3025003
 3 KVS3025005

 4 KML2065002
 5 FRT2550
 6 KML2040002
 7 TZZ76
 8 TZZ64
 9 TZZ48
 10 TZZ37
 11 TZZ32
 12 TZZ24
 13 KML2025002

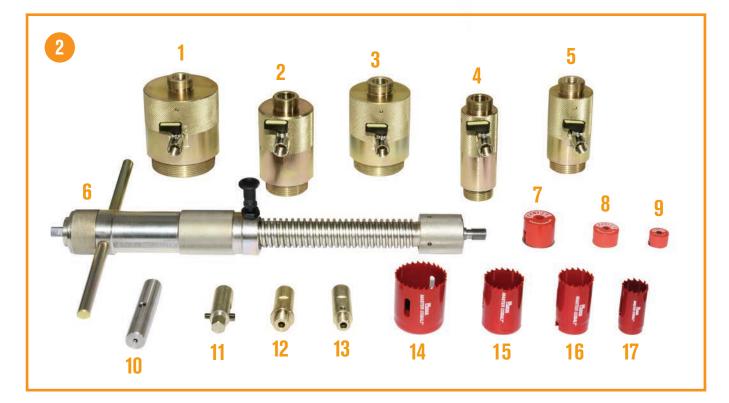


 Photo
 2
 MINI DRILLING MACHINE KIT 1/2"- 2" BALL VALVE 1 KVS3025006
 2 KVS3025004
 3 KVS3025005

 4
 KVS3025002
 5 KVS3025003
 6 FRT2550
 7 RMQAN32
 8 RMQAN25
 9 RMQAN19
 10 FRT3025017

 11
 FRT3025009
 12 FRT3025010
 13 FRT3025021
 14 TZZ48
 15 TZZ37
 16 TZZ32
 17 TZZ24

## BORE DIAMETERS

	Diameters	Bore diameter for ball-valve	Bore diameter for Mini Lock	Bore diameter for Micro Lock
	1/2"	12 mm	-	-
Nov.	] ″	21 mm	24 mm	24 mm
	] 1/4 "	27 mm	32 mm	32 mm
	1 1/2″	35 mm	37 mm	37 mm
	2″	45 mm	48 mm	48 mm
	21/2″	-	-	64 mm
	3″	-	-	76 mm







The Lock Line Drilling System DN 1"- 2" is designed for the execution of drilling on pressured pipes up to 5 BAR. The system is composed of a machine body (drilling machine), a sandwich valve with a passage hole DN 56,2 mm, an adapting flange DN 1", an adapting flange DN 11/4", an adapting flange DN 11/2", an adapting flange DN 2", a plug mounting device, a hole saw cutter mounting device, a case with ventilation valve with passage diameter DN 63 mm and a kit of assembly keys.

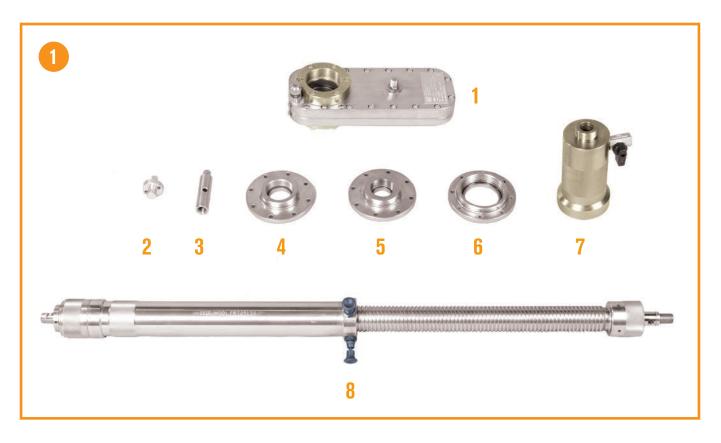


Photo 1 VK2550 2 FRT4150006 3 FRT4150018 4 VLK3050010 5 VLK3050009 6 VLK3050012 7 CDA2550 8 FRT50150

#### BORE DIAMETERS

DN 1"	MM24
DN 11/4"	MM32
DN 11⁄2″	MM37
DN 2"	MM48

#### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE	EN ISO 13850
EN ISO 12100-1	EN 619
EN ISO 12100-2	EN 1050
EN 13857	UNI EN 12516-2
EN 349	

## **LOCK LINE DRILLING DN 1"- 6"**



3.3



The Lock Line Drilling System DN 1"- 6" is designed for the execution of drilling on pressured pipes up to 16 BAR through ball valves or rubber cone valves, or through TEE fitting using Lock Line flat valves. The drilling equipment is designed for executing drilling DN 1"- 2"- 21/2"- 3"- 4"- 5"- 6" operated manual (it can be also operated by a hydraulic motor). The working stroke is 410 mm. The equipment is composed of: 1) Machine Body 2) Hole saw cutters and centering drills 3) Intermediate support.

The equipment is supplied complete of assembly keys and tools set, a series of high speed steel hole saw cutters for steel and cast iron type TA up to DN 3" and type TAD for DN 4"- 5"- 6".



#### Photo 🕕

1 FRT5015	50	2 FR	74150	018
3 FRT4150	)013	4 FR	r <b>415</b> 0	006
5 FRT4150	)023	6 FR	r4150	017
7 FRT4150	)016	<mark>8</mark> FR1	4150	015
<mark>9</mark> TZZ140	10 TZ	ZZ121	<b>11</b> T	ZZ98
12 TZZ76	<mark>13</mark> TZ	Z64	14 T	ZZ51

#### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE
EN ISO 12100-1
EN ISO 12100-2
EN 13857
EN 349

EN ISO 13850 EN 619 EN 1050 UNI EN 12516-2

# **LOCK LINE DRILLING DN 8"- 16"**

**.** 



3.4



DN 12"

DN 14"

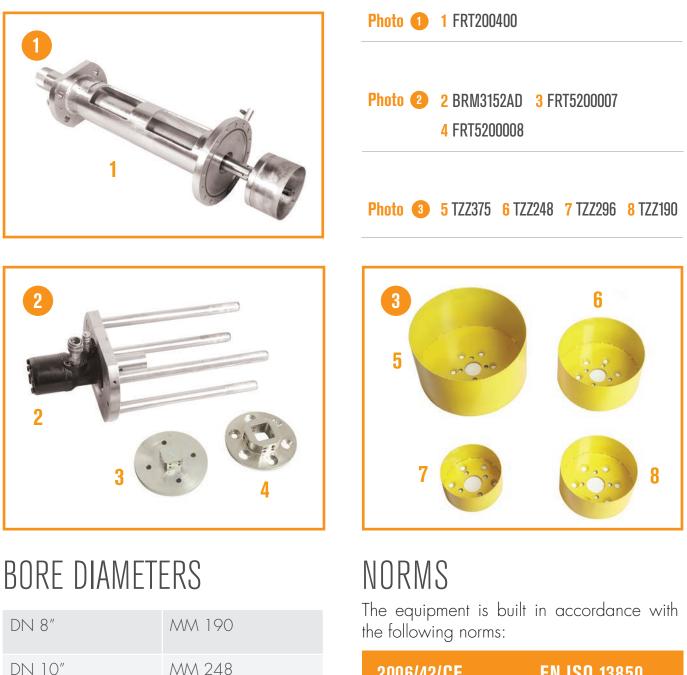
DN 16"

MM 296

MM 325

MM 375

The Lock Line Drilling System DN 8"- 16" is designed for the execution of drilling on pressured pipes up to 16 BAR through ball valves or rubber cone valves, or through TEE fitting using Lock-Line flat valves. The drilling equipment is designed for executing drilling DN 8"- 10"- 12"- 14"- 16" operated hydraulic motor. The working stroke is 500 mm. The equipment is composed of: 1) Machine Body 2) Drilling Case 3) Hole saw cutters and centering drills 4) Intermediate support 5) Hydraulic motor with support and guide-bars. The equipment is supplied complete of assembly keys and tools set.



EN ISO 13850
EN 619
EN 1050
UNI EN 12516-2



## DRILLING AND PLUGGING INTEGRATED SYSTEM

#### MINI LOCK DN 1"- 1¼"- 1½"- 2" UP TO 5 BAR



The integrated system of drilling and plugging Mini Lock is constituted by a drilling system designed for the execution of drilling on pressured pipes up to 5 BAR and a plugging system for the execution of plugging operations of flows in pipes DN032, DN040, DN050 and maximum operating pressure of PNmax = 5 bar (for district heating Tmax = 90 ° C). The drilling equipment is designed for executing drilling DN 1 "- 1  $\frac{1}{4}$ " - 1  $\frac{1}{2}$  "- 2" manually operated. The working stroke is 161 mm.

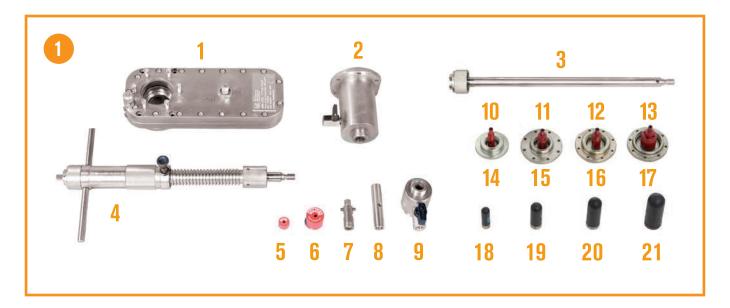


Photo 🕕 1 VK2550 2 MLK3025008 3 MLK2550
4 FRT2550 5 RMQAN19 6 RMQAN31 7 FRT3025009
8 FRT3025017 9 MLK3025006 10 TZZ24 11 TZZ32
<b>12</b> TZZ37 <b>13</b> TZZ48 <b>14</b> VLK3050009 <b>15</b> VLK3050010
16 VLK3050011 17 VLK3050012 18 VLK30250002
<b>19</b> VLK30250003 <b>20</b> VLK30250004 <b>21</b> VLK30250005

Photo ② 22 FMS050 23 FMS040 24 FMS032 25 FMS025

#### BORE DIAMETERS

DN 1"	MM 24
DN 11/4"	MM 32
DN 11/2"	MM 37
DN 2"	MM 48

#### NORMS

The equipment is built in accordance with the following norms:

2006/42/CE	EN ISO 13850
EN ISO 12100-1	EN 619
EN ISO 12100-2	EN 1050
EN 13857	UNI EN 12516-2
EN 349	









### NEW TECHNOLOGIES FOR SAFETY ON OPERATIONAL AREA IN THE YARD

## Safe Work System: The exclusive solution of active safety control explosion in the operational area in the yard.

From a decade of experience in the field of maintenance in distribution networks, the idea was born, on the part of ISIF, to develop and implement an active safety system for automatic maintenance of ducts flammable and explosive gas and to control confined spaces.

The SWS is a prevention solution that allows for a safe conduct of all activities of maintenance by the operator, through a instrument easy to manage and reliable to use.

#### The system

The system is composed by explosimeters (delivered to each worker) are connected wirelessly to a control center that controls the threshold of explosion in the operating area of the yard, by detecting the amount of potential explosive mixtures present.

On the control unit are set two thresholds of alert: when the explosimeter detects an amount of explosive mixture that activate the warning threshold, the system warns you with a visual and audible both the operator and the center of the potential danger; when it exceeds the second threshold of alarm, the system turns off the power to all potential sources of ignition (welding, grinding wheel etc ...) reporting the security area.

In addition to the control of the construction site with mobile devices to the system can be connected to a fixed sensor for the certificate drainage of pipeline to be disposed of through the controlled introduction of nitrogen.



#### Historicizing of events

The system provides the user with a complete and accurate reporting of all relevant events that took place throughout the work day and then not only allows you to continuously analyze and optimize the safety conditions of the operating area, but facilitates the control of the operating modality in figure safety authority.

#### Advantages

The system has been patented by ISIF and itis the first security solution active in this market. In emergencies, the system warns the operator passively giving only a warning, but beyond that actually occurs automatically and in real-time on the devices used in the operating area of yard. This prevention system allows to reduce the possible dangerous events and at the same time, having the sensors that operate in an automatic way, does not hinder in any way the operation of the worker.

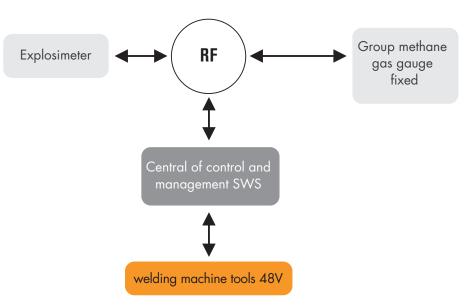
#### Integration with the control PPE (personal protective equipment)

Another fundamental innovation integrated with the SWS is the solution for monitoring real-time automatic allocation and use of safety equipment by the worker. The operator uses innovative "PPE-active" registers to the central SWS at the beginning of the work and the system automatically verifies that all necessary safety devices are worn by the operator and logs the event. In addition to the initial inspection, the system allows, through the active transponder technology, monitoring the use of PPE continuously throughout the workday.

#### A look to the future

The purpose in the future is to make the machine usable for all types of gases, harmful / lethal explosives for operators, changing the type of sensor connected to the control panel. They are also in the final stages the certificates of the ATEX and Safety Integrity Level, fundamental in this type of environment.

#### Graph General description of the system





**Central SWS** Foto (2)

Foto ③ HHS01 – Wireless explosimeters

#### TECHNICAL DATA SHEET

Display touch screen	7"	
Supply	48V	
Max welding curren	300 A	
Max current for con- nected equipment	130 A	
Dimensions Central SWS	685 x 381x 612 mm	
HHS Explosimeter size	113 x 66 x 29	

The system is transportable on two wheels



## FITTINGS AND ACCESSORIES

FTS Lock Line Standard Fitting	DN 6"- 8"- 10"- 12"- 16"
FMS Mini Lock Standard Fitting	DN 1"-11/4"-11/2"-2"
FMR Mini Lock Reduced Fitting	DN 1"- 1¼"- 1½"- 2"- 2½"- 3"
FITI Bag Lock Saddle Shaped Fitting	DN 3"-6"
FIT Lock Line Standard Fitting	DN 2"- 2½"- 3"- 4"- 5"- 6"- 8"- 10"- 12"
FIS Lock Line Increased Fitting	DN 10"- 12"
FIF Wrapper Fitting	DN 5"
FIB Bag Lock Standard Fitting	DN 3"- 4"- 5"- 6"- 8"- 10"- 12"
FDA Adapter Flange	DN 10"- 12"
T Fitting with FIT Head	da DN 1″ a 12′′
Bag Lock Pe Fitting	Pe 90x2½" - Pe 125x3"- Pe 180x3"- Pe 225x3" - Pe 315x3"
Bag Lock Cast Iron	FGH080x2"; FGH100x2" ½; FGH125x3"; FGH125x3"; FGH200x4"; FGH250x4"; FGH300x4"
Multidiameter Ball Plug	DN 50/65/80; DN 80/100/125; DN 150/200; DN 250/300; DN 300/400
Multidiameter Ball Plug with Protective Cap	DN 50/65/80; DN 80/100/125; DN 150/200; DN 250/300; DN 300/400
Hole Saw Cutters	19 - 24 - 32 - 37 - 48 - 51 - 57 - 64 - 76 - 98 - 121 - 140 - 190 - 240 - 290

## FITTINGS AND ACCESSORIES





#### Photo 1 PE BAG LOCK FITTINGS

Nr.	Article	Nr.	Article
1	FPE090x2.5	4	FPE225x3
2	FPE125x3	5	FPE315x3
3	FPE180x3	-	-

#### Photo (2) MULTI-DIAMETER BALL-PLUGS

Nr.	Article	DN
6	BBL6080	2"- 3"
7	BBL100125	4"- 5"
8	BBL150200	6"- 8"
9	BBL250300	10"-12"

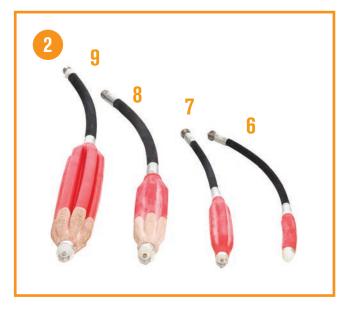


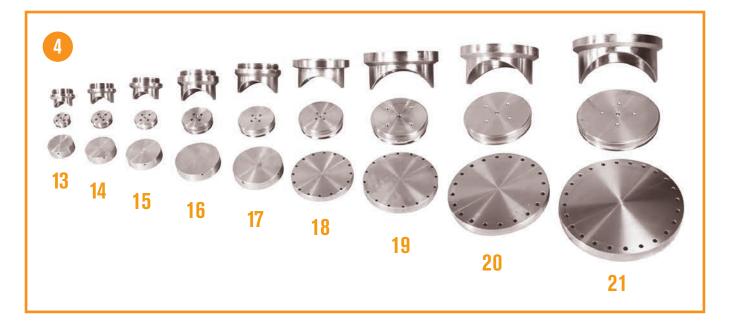


Photo (3) INSPECTION CASES

Nr.	Article	DN
10	KML32	] 1/4″
11	KML50	2″
12	KML80	2"







#### Photo ④ SHAPED STEEL FITTINGS

Nr.	Article	DN	Nr.	Article	DN	Nr.	Article	DN
13	FITO50	2″	16	FIT 1 OO	4″	19	FIT200	8″
14	FITO65	21⁄2″	17	FIT125	5″	20	FIT250	10″
15	FITO80	3″	18	FIT 150	6"	21	FIT300	12″



#### Photo 💿 MINI LOCK STEEL FITTINGS

#### BAG LOCK STEEL FITTINGS

Nr.	Article	DN	Nr.	Article	DN	Nr.	Article	DN
22	FMS050	2″	25	FMS025	] ″	28	FITIO80	3″
23	FMS040	11/2″	26	FIBO80	3″	29	FITI 150	6"
24	FMS032	1 1/4 ″	27	FIB150	6"	-	-	-



Photo 7 TORUS RUBBER GASKET FOR PLUGGING MACHINES

Nr.	Article	DN	Nr.	Article	DN	Nr.	Article	DN
30	TMP5050004	2″	34	TMP5100004	4″	38	TMP4250035	10″
31	TMP5057004	21⁄4″	35	TMP5125004	5″	39	TMP4300022	12″
32	TMP5065004	21⁄2″	36	TMP5150004	6″	40	TMP2440060	16″
33	TMP5080004	3″	37	TMP5200025	8″	-	-	-



#### Photo (1) HOLE SAW CUTTERS

Nr.	Article	DN	Nr.	Article	DN	Nr.	Article	DN
41	TZZ19	19mm	46	TZZ51	51mm	51	TZZ121	121mm
42	TZZ24	24mm	47	TZZ57	57mm	52	TZZ140	140mm
43	TZZ32	32mm	48	TZZ64	64mm	53	TZZ190	190mm
44	TZZ37	37mm	49	TZZ76	76mm	54	TZZ240	240mm
45	TZZ48	48mm	50	TZZ98	98mm	55	TZZ290	290mm
						56	TZZ364	364mm

## **CERTIFICATIONS 7.0**





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